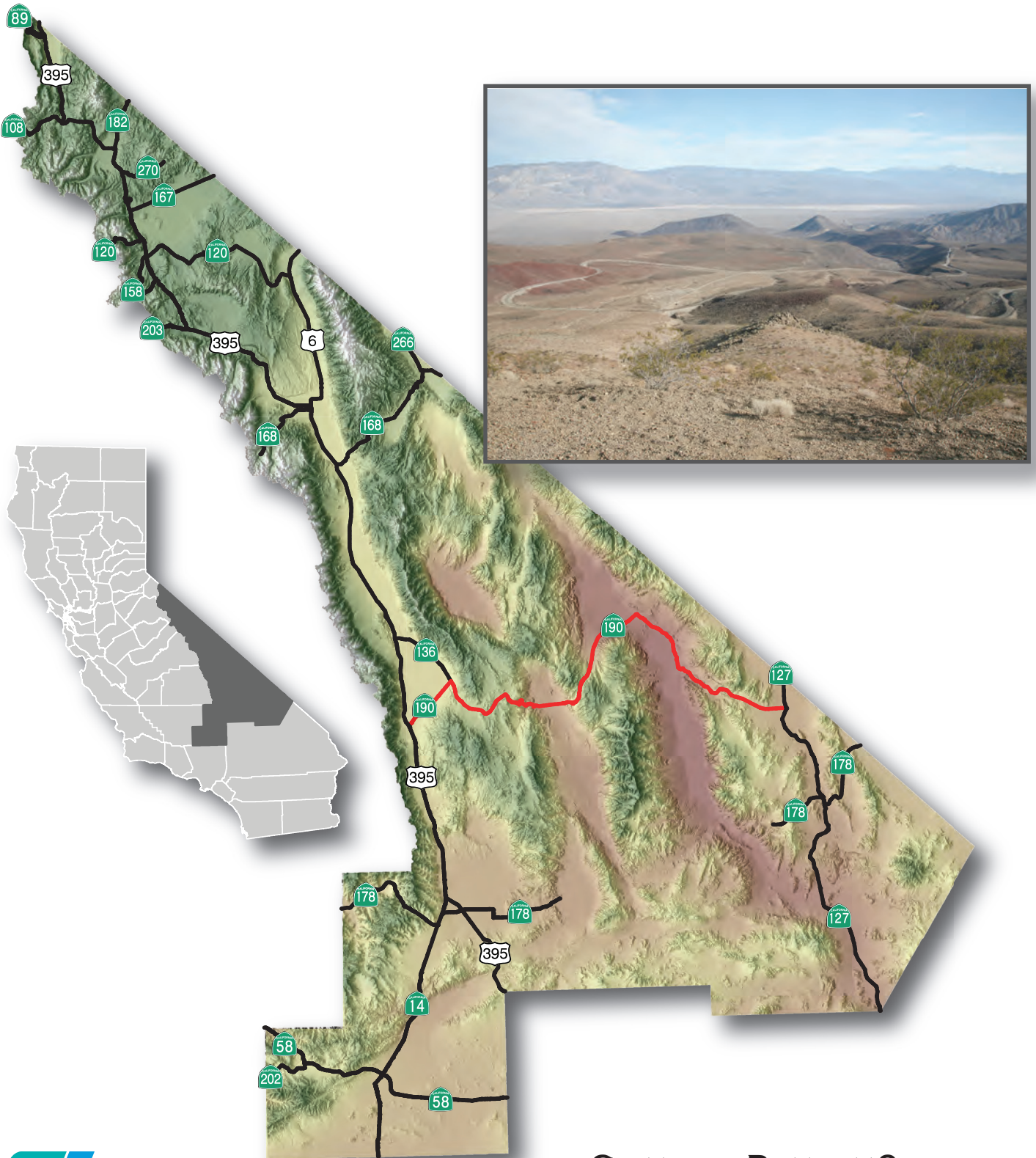




STATE ROUTE 190 TRANSPORTATION CONCEPT REPORT



CALTRANS DISTRICT 9
OFFICE OF SYSTEM PLANNING
JUNE 2013



State Route 190 Transportation Concept Report

Prepared
by
Caltrans District 9
Office of System Planning

June 2013


For additional information regarding the Transportation Concept Report for State Route 190, please contact:

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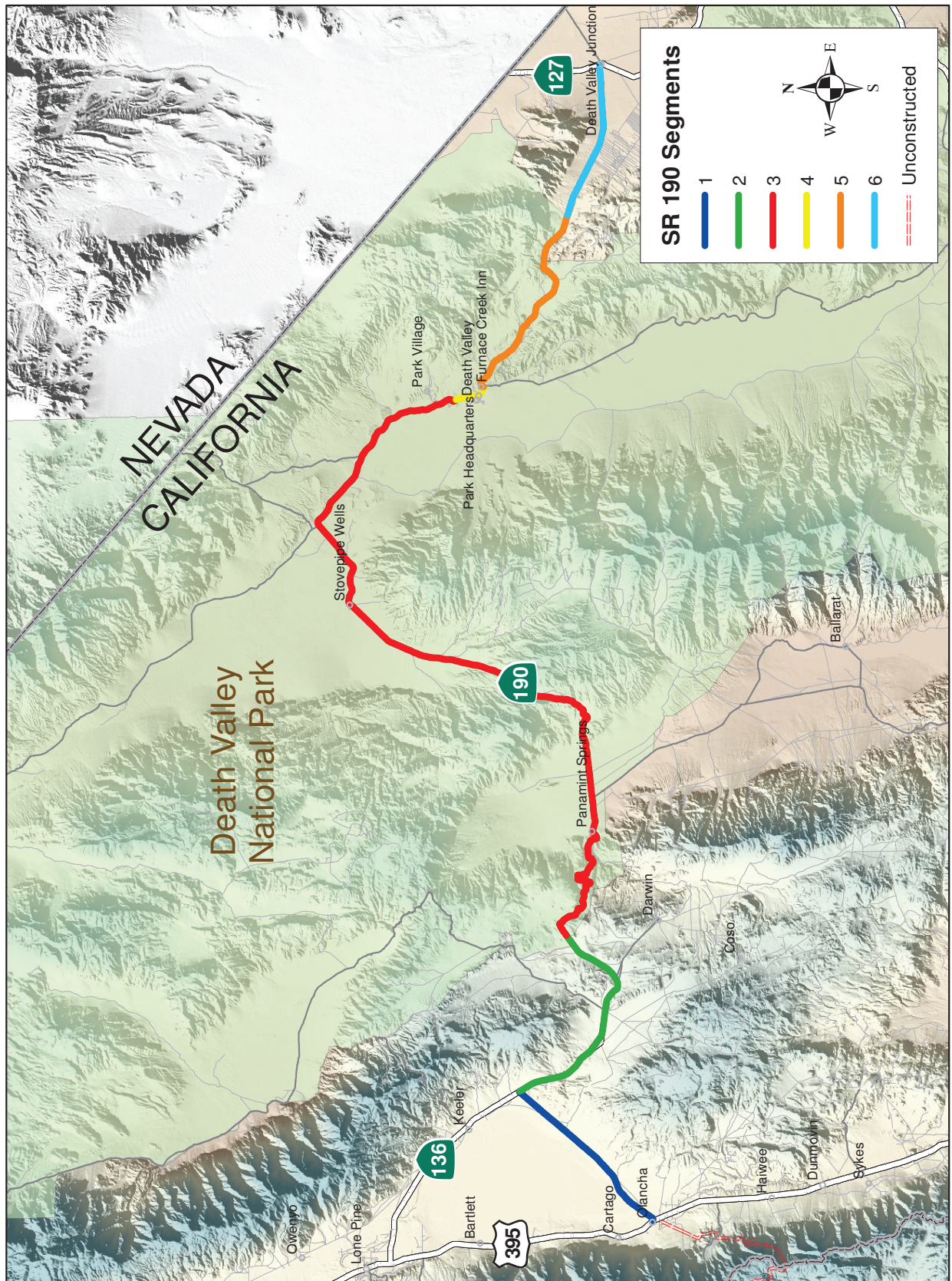
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Approval for State Route 190 Transportation Concept Report

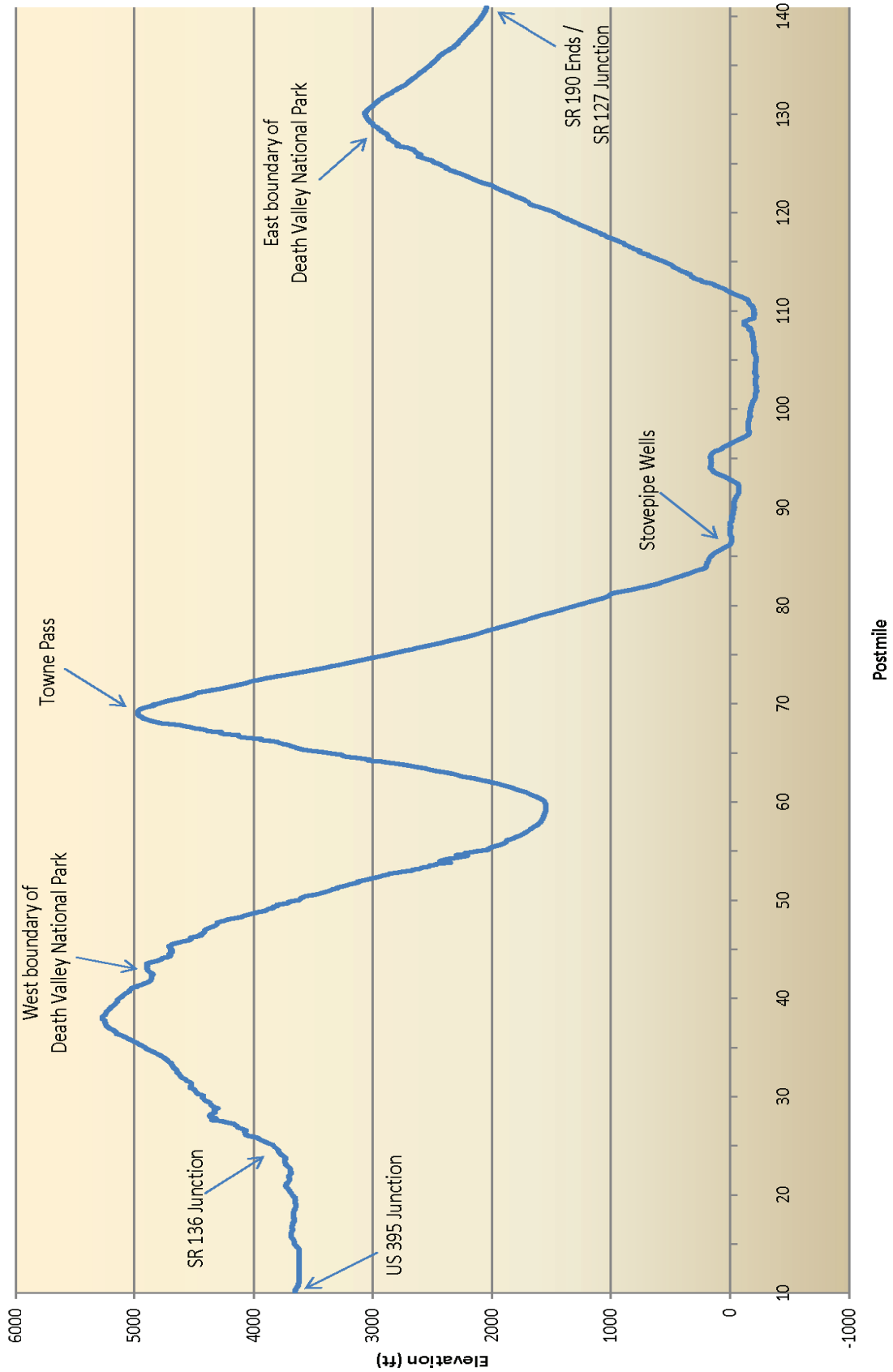
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State Route 190 Segment Map



State Route 190 Elevation Profile



State Route 190 Transportation Concept Report

INTRODUCTION

This Transportation Concept Report (TCR) is a long range planning document that describes the current characteristics of the State Route (SR) 190 transportation corridor and establishes a twenty-year planning concept. A TCR defines the California Department of Transportation's (Caltrans) goals for the development of a corridor in terms of facility type and Level of Service (LOS), while broadly identifying the improvements needed to reach those goals.

LOS calculations are based on the year 2010 Highway Capacity Manual (HCM). In the 2010 HCM, capacity calculation methodologies changed from past editions. As a result, LOS values may differ from former reports or studies.

This TCR was prepared by Caltrans District 9 Office of System Planning, with the cooperation of local and regional agencies. All information in this TCR may become outdated as conditions change and new information is obtained. Consequently, the nature and size of identified improvements may change during project development and environmental analysis stages. Final determinations are made at the time of project planning and design.



SR 190

CONCEPT RATIONALE

The constructed part of SR 190 in Inyo County is a two-lane facility. Of its 131.31-mile length, 127.05 miles are classified as conventional highway; the remaining 4.26 miles are classified as expressway. The entire length is functionally classified by the Federal Highway Administration as a Minor Arterial. This route is part of the Interregional Road System (IRRS) that connects United States Highway (US) 395 at the eastern flank of the Sierra Nevada Range to SR 127 at Death Valley Junction near the California/Nevada border. Caltrans recommends continued rehabilitation and operational improvements on SR 190 due to its inclusion in the California Legal Network and because a portion of the highway is designated as a California Legal Advisory Route. The facility is Death Valley National Park's (DVNP's) only continuously paved west-to-east thoroughfare. Also, it provides lifeline accessibility for rural communities in and near DVNP to emergency services in the Owens Valley. Table 1 summarizes the current and future facility and LOS for SR 190 in Inyo County. The Post-25 Year Facility is the goal for the route beyond the twenty-year planning horizon.

Table 1 – SR 190 Facility Summary

Segment County Post-Mile	Segment Length (miles)	Current Facility	Concept Facility	Post-25 Year Facility	2010 AADT	Current LOS	10-Yr LOS	20-Yr LOS	Route Concept LOS
Unconstructed Inyo 2.20 - L14.20 (L14.20 back equates to 9.85 ahead)	12.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1 Inyo 9.85 - 24.55	14.7	2-C	2-C	2-C	275	A	A	A	C
2 Inyo 24.55 - 42.70	18.2	2-C	2-C	2-C	500	A	A	B	C
3 Inyo 42.70 - 109.07	66.8	2-C & 2-E	2-C & 2-E	2-C & 2-E	840	B	B	B	C
4 Inyo 109.07 - 111.73	2.7	2-C	2-C	2-C	1,120	B	C	C	C
5 Inyo 111.73 - 128.33	16.6	2-C	2-C	2-C	1,000	B	B	B	C
6 Inyo 128.33 - 140.69	12.4	2-C	2-C	2-C	850	A	B	B	C

For acronyms used in this table, see page 21.

ROUTE SYNOPSIS

SR 190 begins at its junction with SR 99 at Tipton in Tulare County (in Caltrans District 6). The route extends east to where the existing alignment terminates on the western slope of the Sierra Nevada mountains at the entrance to Quaking Aspen Campground. East of Quaking Aspen and over the Sierra Crest to US 395 in Olancho, the California Transportation Commission adopted 43 miles of the legislatively designated but unconstructed alignment of SR 190. The unconstructed portion within Inyo County is 12 miles long from PM 2.20 at Haiwee Pass on the Inyo/Tulare county line to PM L14.20 at US 395. At US 395, PM L14.20 back (to the west) equates to PM 9.85 ahead (to the east).

This TCR addresses the 131 constructed miles of SR 190 located in Inyo County in six segments (see Table 2). This portion of the highway starts at the junction with US 395 and proceeds east over level, mountainous, and rolling desert terrain to its terminus at the junction with SR 127. This highway serves local, interregional, interstate, and recreational traffic.

The Average Annual Daily Traffic (AADT) for the route ranges between 275 and 1,120. Truck traffic and recreational vehicles comprise 3.9 - 14.5% of AADT. The functional classification, description, facility type, Right-of-Way (R/W), users, designation, and truck networks for each segment are in Table 2.

Segment County Post- Mile	Functional Class	Description	Present Facility	R/W Width (ft) & Rights	Users	Facility Designations	National Truck Network	See Page #
Unconstructed Inyo 2.20 - L14.20 (L14.20 back equates to 9.85 ahead)	N/A	Haiwee Pass to US 395 in Olancho	N/A	N/A	N/A	N/A	N/A	N/A
1 Inyo 9.85 - 24.55	Minor Arterial	US 395 junction to SR 136 junction	2-C	variable width, easement, including RS 2477, and prescriptive right	Local, interregional, interstate, and recreational	Interregional Road System (IRRS)	California Legal Network	9
2 Inyo 24.55 - 42.70	Minor Arterial	SR 136 junction to west boundary of Death Valley National Park	2-C	400', easement, including RS 2477	Local, interregional, interstate, and recreational	CA Freeway & Expressway System, Interregional Road System (IRRS)	California Legal Advisory Route	11
3 Inyo 42.70 - 109.07	Minor Arterial	West boundary of Death Valley National Park to Borax Mill Road east end	2-C & 2-E	100' - 500', fee and easement, including RS 2477	Local, interregional, interstate, and recreational	CA Freeway & Expressway System, Interregional Road System (IRRS)	California Legal Advisory Route & California Legal Network	13
4 Inyo 109.07 - 111.73	Minor Arterial	Borax Mill Road east end to Badwater Road	2-C	100', fee, easement, and prescriptive right	Local, interregional, interstate, and recreational	CA Freeway & Expressway System, Interregional Road System (IRRS)	California Legal Network	15
5 Inyo 111.73 - 128.33	Minor Arterial	Badwater Road to east boundary of Death Valley National Park	2-C	40' - 400', fee, easement, and prescriptive right	Local, interregional, interstate, and recreational	CA Freeway & Expressway System, Interregional Road System (IRRS)	California Legal Network	17
6 Inyo 128.33 - 140.69	Minor Arterial	East boundary of Death Valley National Park to SR 127 junction	2-C	100' - 400', easement and prescriptive right	Local, interregional, interstate, and recreational	CA Freeway & Expressway System, Interregional Road System (IRRS)	California Legal Network	19

For acronyms used in this table, see page 21.

TRANSPORTATION PLANNING, OPERATIONS, AND LAND USE

SR 190 serves local, interregional, interstate, and recreational traffic. It is the major access arterial for people living and working in places such as Darwin, Panamint Springs, Stovepipe Wells, and Furnace Creek. Located in one of the most remote parts of California, travelers from all over the world use SR 190 as a gateway to DVNP. The route is the only state highway that provides access from the west to DVNP. Its proximity to the Nevada border to the east encourages interstate tourism leading to DVNP, Yosemite National Park, and San Francisco. As a result of the global significance of this area, continuing coordination between Caltrans and the National Park Service (NPS) should occur during the planning, design, and construction phases of all proposed improvements to SR 190.

Based on HCM 2010 calculations, LOS of SR 190 Inyo County segments currently vary from A through C. The concept LOS is C. LOS degradation is not anticipated; hence, capacity increasing projects are not warranted or proposed for the facility. Safety and operational improvements may be pursued but will have to take into account any possible scenic or environmental impacts. As projects are developed, all user needs, including pedestrians and bicyclists, should be considered collectively.

The primary operational concerns for SR 190 are tourists stopping in the traveled way, flash floods pouring water and debris onto the highway, pavement deterioration due to intense summer heat, lack of paved shoulders and turnouts, rockfall, and a decrease in sight distance at drainage dip locations. Material from alluvial fans may cause sections of the roadbed to become undermined and/or buried during floods. Drainage improvements, shoulder widening, rumble strip installation, horizontal and vertical curve realignments, turnouts, scenic pullouts, rockfall protection, and improved clear recovery zones will be considered as funding allows.



SR 190
Flood damage, 2004

Owens Lake

Owens Lake is mostly dry. It is located north of SR 190 from PM 9.85 - PM 24.55 (Segment 1). It became a dry lake in the 1920s, when much of the Owens River flow, the primary source of Owens Lake water, was diverted into the Los Angeles Aqueduct between Big Pine and Independence. Periodic winds cause dust storms that carry as much as four million tons of

dust from the lakebed each year, posing air quality issues for nearby residents and travelers. Under court order, Los Angeles Department of Water and Power has implemented dust mitigation efforts, such as shallow flooding and managed vegetation, to minimize further adverse health effects to humans and restore habitat for birds, plants, and other wildlife.

Native American Tribal Lands

Members of the Timbisha Shoshone Tribe (Tribe) are descendants of native people who once occupied portions of California and Nevada. Areas that now comprise DVNP and Bureau of Land Management (BLM) administered lands, are the Tribe's ancestral homeland. In 1983, the Tribe became a federally recognized Native American tribe by the United States government. Passed in November 2000, the Timbisha Shoshone Homeland Act provided lands and water in trust to the Tribe. Those lands include an area of approximately 640 acres west of Darwin at Centennial (Segment 2), approximately 400 acres at Furnace Creek (Segment 4) in DVNP, and approximately 1,000 acres at Death Valley Junction (Segment 6), where SR 127 intersects SR 190.



National Park Service sign
Photo. *Death Valley National Park*
4 December 2012. <www.nps.gov>

Death Valley National Park

DVNP is located in both Inyo and San Bernardino counties in California, as well as Esmeralda and Nye counties in Nevada. The park is an international tourist attraction and receives more than 770,000 visitors annually. Rich in history, culture, flora, wildlife, geology, and other points of interest, DVNP offers a wide variety of educational and recreational opportunities.

The NPS is currently researching restoration and management of spring systems at Furnace Creek. The project's goals include returning surface flow that has been captured and piped for municipal use from Travertine Springs for several decades, and restoring the spring systems' historical biological condition. The flow from one of the springs crosses SR 190 from north to south in a culvert. Increased flow would cause the water to recross north back over the highway possibly resulting in safety and maintenance issues. Caltrans is working with the NPS to research viable solutions that align with standards and policies concerning the roadway and will avoid adverse affects to the highway.

ENVIRONMENTAL

2012 California Natural Diversity Database (CNDDB) and Archaeology

An initial assessment of known biological resources in a 2000 ft wide corridor centered along SR 190 is listed in the Environmental sections of the Segment Fact Sheets on pages 9 - 20. This information may not represent all possible environmental constraints, such as cultural resources (historic and prehistoric), floodplain encroachment, hazardous materials, noise, and visual impacts. Any SR 190 project being considered for programming would require environmental clearance in compliance with all federal, state, and local environmental laws and regulations. Portions of SR 190 are in what Caltrans considers “culturally sensitive areas.” Any future work along the highway that goes beyond the current area of disturbance, may require cultural resource evaluation by both Caltrans and DVNP approved archaeologists.

California Climate Change Law AB 32 and SB 375

Caltrans, working through its project development process, is helping local agencies understand, prepare, and comply with new California climate change laws AB 32 and SB 375. By incorporating planning, environmental, construction, and maintenance strategies based upon sound and current science, greenhouse gas emissions may be reduced.

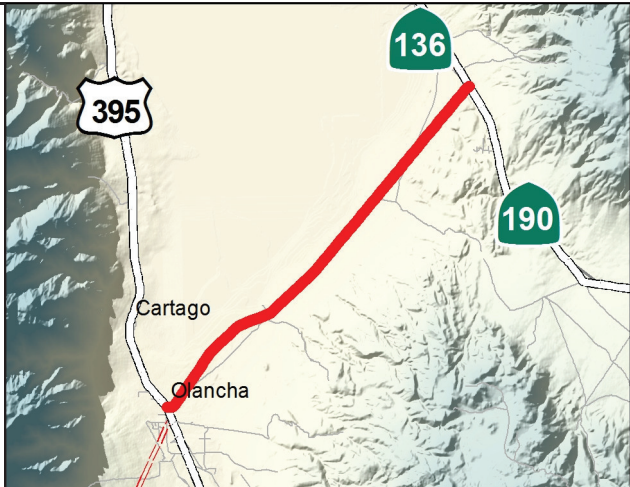
COMMUNITY PARTNERS & PUBLIC OUTREACH

Major improvements to SR 190 will be planned utilizing a collaborative, interdisciplinary approach involving all stakeholders. Use of this approach integrates and balances community, aesthetic, historic, and environmental values with regard to transportation safety, maintenance, and performance goals.

Stakeholders in the SR 190 planning area are community members and agencies, including, but not limited to:

- Bureau of Land Management
- California Native Plant Society
- California State Lands Commission
- Community of Cartago
- Community of Darwin
- Community of Death Valley Junction
- Community of Furnace Creek
- Community of Olancho
- Community of Panamint Springs
- Community of Stovepipe Wells
- Eastern Sierra Audubon Society
- Great Basin Valleys Air Quality Management District
- Inyo County
- Inyo County Local Transportation Commission
- Los Angeles Department of Water and Power
- National Park Service
- Timbisha Shoshone Tribe

STATE ROUTE 190 - SEGMENT FACT SHEET

SEGMENT 1 of 6		Through Lanes 2		
Length, miles 14.7	Shoulder Width, ft 0-4			
Beginning PM 9.85	Median Width, ft 0			
Ending PM 24.55	Lane Width, ft 11-12			
Surrounding Terrain: Level				
Facility Classification				
Present: 2-C	Concept: 2-C	Post-25 Year: 2-C		
Level of Service				
Present: A	Concept: C	Class II Highway		
Segment Description				
This segment begins at the junction with US 395 (PM 9.85) and ends at the junction with SR 136 (PM 24.55). It traverses level desert terrain. The facility is a two-lane conventional highway classified as a Minor Arterial with a posted speed limit of 65 miles per hour (mph). It is undivided and does not have access control. Olancha Dunes Off Highway Vehicle Area, managed by BLM’s Ridgecrest Field Office, is located less than two miles east of Olancha.				
Highway Network Affiliation				
Functional Classification: Minor Arterial		CA Freeway and Expressway System: No		
National Truck Network: California Legal Network		Interregional Road System (IRRS): Yes		
Strategic Highway Corridor Network: No		National Highway System: No		
Scenic Highway: Eligible for designation		Regionally Significant: Yes		
		Life Line: No		
Traffic Flow, Present and Projected			Maintenance Program	
Year	Average Annual Daily Traffic	Design Hourly Volume	Level of Service	Maintenance Service Level: Class 3
2010	275	55	A	Maintenance Station: Independence - Highway Maintenance Station 665 N. Edwards Independence, CA 93526
2020	340	70	A	
2030	410	80	A	
Right-of-Way			Use Patterns	
Rights	R/W held by easement and prescriptive right.	Peak Hour Directional Traffic Split		54/46
		10-Year Traffic Growth %		2.0
Width	Variable	Trucks/Total Vehicles %		14.5

STATE ROUTE 190 - SEGMENT FACT SHEET

Traffic Analysis

This segment of SR 190 is a conventional highway primarily used by local, interregional, interstate, and recreational traffic. The area is susceptible to high winds which contribute to blowing dust from the Owens Lake.

Route Concept Improvement Recommendations

Increase paved shoulder width to 4 ft standard and install shoulder rumble strip; additionally, increase unpaved shoulder width to 3 ft. Improve clear recovery zone as needed. Maintain and improve the existing drainage network. At start and end of segment, place kingpin-to-rear-axle advisory signage for eastbound traffic to forewarn truckers of California Legal Advisory Route beginning at the SR 136 junction.

Land Use

Usage: Resource management and open rangeland.

Land managers/owners: Bureau of Land Management, County of Inyo, Los Angeles Department of Water and Power, State Lands Commission, and private parcels.

Environmental

Endangered / Threatened Species: Listed in the California Natural Diversity Database (CNDDDB) 2012,
Western Snowy Plover: Threatened (Fed) Mohave Ground Squirrel: Threatened (CA)
Owens Tui Chub: Endangered (Fed, CA)
Least Bell's Vireo: Endangered (Fed, CA)

Air Quality

Air Basin: Great Basin Valleys

State of California Ambient Air Quality Standard:

Ozone: Nonattainment
PM-10: Nonattainment

National Ambient Air Quality Standard:

8-Hour Ozone: Unclassified / Attainment
PM-10: Nonattainment / Unclassified

Transit Service, Modal Options, & Complete Streets

Transit Service: Eastern Sierra Transit Authority (ESTA): 395 Route (Mammoth Lakes to Lancaster) stops in Olancha. Private companies offer tours and transportation along SR 190.

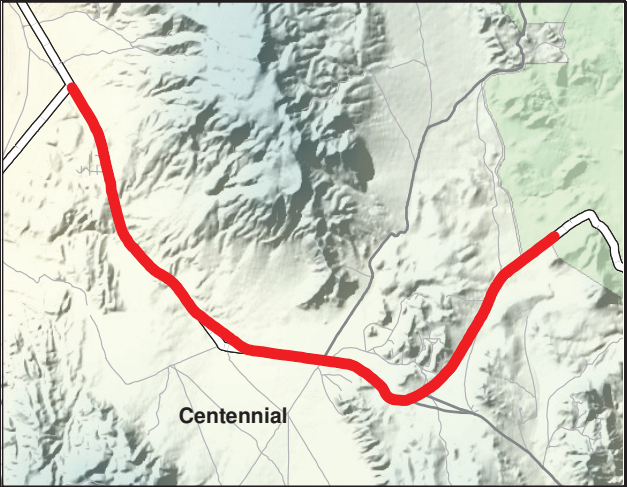
Modal: Pedestrians, bicycles, and motor-driven cycles are allowed.

Complete Streets: Paved, widened shoulders should be continuous to better accommodate bicyclists and pedestrians. Sidewalks do not exist.

Programmed Projects

None.

STATE ROUTE 190 - SEGMENT FACT SHEET

SEGMENT 2 of 6 Length, miles 18.2 Beginning PM 24.55 Ending PM 42.70 Surrounding Terrain: Mountainous, Rolling <u>Facility Classification</u> Present: 2-C Concept: 2-C Post-25 Year: 2-C <u>Level of Service</u> Present: A Concept: C Class II Highway					
Segment Description					
<p>This segment begins at the junction with SR 136 (PM 24.55) and ends at the west boundary of Death Valley National Park (PM 42.70). It traverses mountainous and rolling desert terrain. The facility is a two-lane conventional highway classified as a Minor Arterial with a posted speed limit of 65 mph. It is undivided and does not have access control. The community of Darwin is located about six miles southeast of SR 190. The Timbisha Shoshone Tribe anticipates future development of its land at Centennial will include residential units.</p>					
Highway Network Affiliation					
<table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> Functional Classification: Minor Arterial National Truck Network: CA Legal Advisory Route Strategic Highway Corridor Network: No Scenic Highway: Eligible for designation </td> <td style="width: 50%; vertical-align: top;"> CA Freeway and Expressway System: Yes Interregional Road System (IRRS): Yes National Highway System: No Regionally Significant: Yes Life Line: No </td> </tr> </table>		Functional Classification: Minor Arterial National Truck Network: CA Legal Advisory Route Strategic Highway Corridor Network: No Scenic Highway: Eligible for designation	CA Freeway and Expressway System: Yes Interregional Road System (IRRS): Yes National Highway System: No Regionally Significant: Yes Life Line: No		
Functional Classification: Minor Arterial National Truck Network: CA Legal Advisory Route Strategic Highway Corridor Network: No Scenic Highway: Eligible for designation	CA Freeway and Expressway System: Yes Interregional Road System (IRRS): Yes National Highway System: No Regionally Significant: Yes Life Line: No				
Traffic Flow, Present and Projected					
Year	Average Annual Daily Traffic	Design Hourly Volume	Level of Service	Maintenance Program	
2010	500	90	A	Maintenance Service Level: Class 3 Maintenance Station: Independence - Highway Maintenance Station 665 N Edwards Independence, CA 93526	
2020	640	115	A		
2030	820	150	B		
Right-of-Way				Use Patterns	
Rights	R/W held by easement, including RS 2477.	Peak Hour Directional Traffic Split	62/38		
		10-Year Traffic Growth %	2.5		
Width	400 ft	Trucks/Total Vehicles %	10.2		

STATE ROUTE 190 - SEGMENT FACT SHEET

Traffic Analysis

This segment of SR 190 is a conventional highway primarily used by local, interregional, interstate, and recreational traffic. From the SR 190/SR 136 junction (PM 24.55) to Panamint Valley Road (PM 57.91), trucks with a kingpin-to-rear-axle distance over 30 ft are advised not to travel; buses and motorhomes over 40 ft in length are prohibited.

Route Concept Improvement Recommendations

Increase paved shoulder width to 4 ft standard and install shoulder rumble strip; additionally, increase unpaved shoulder width to 3 ft. Improve clear recovery zone as needed. Stabilize slopes to mitigate rockfall on the roadway (PM 27.70). Replace dip section at Centennial Wash with raised grade (PM 28.40 - PM 29.40). Install double box culvert (PM 28.80).

Land Use

Usage: Resource management and open rangeland.

Land managers/owners: Bureau of Land Management and State Lands Commission.

Environmental

Endangered / Threatened Species: Listed in the California Natural Diversity Database (CNDDDB) 2012, Mohave Ground Squirrel: Threatened (CA)

Air Quality

Air Basin: Great Basin Valleys

State of California Ambient Air Quality Standard:

Ozone: Nonattainment

PM-10: Nonattainment

National Ambient Air Quality Standard:

8-Hour Ozone: Unclassified / Attainment

PM-10: Nonattainment / Unclassified

Transit Service, Modal Options, & Complete Streets

Transit Service: Private companies offer tours and transportation along SR 190.

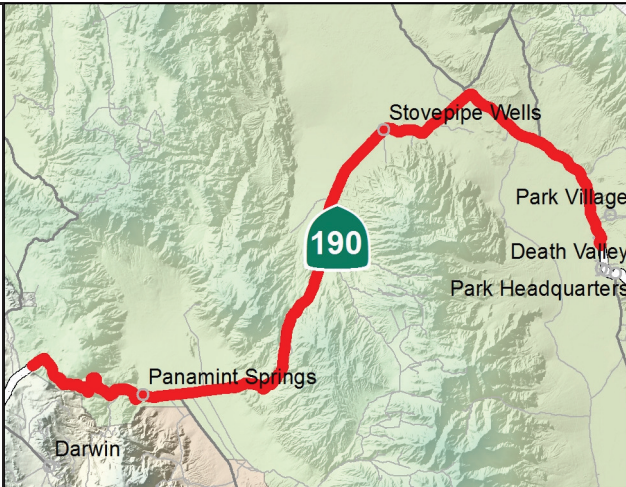
Modal: Pedestrians, bicycles, and motor-driven cycles are allowed.

Complete Streets: Paved, widened shoulders should be continuous to better accommodate bicyclists and pedestrians. Sidewalks do not exist.

Programmed Projects

None.

STATE ROUTE 190 - SEGMENT FACT SHEET

SEGMENT 3 of 6		Through Lanes	2	
Length, miles	66.8	Shoulder Width, ft	0-2	
Beginning PM	42.70	Median Width, ft	0	
Ending PM	109.07	Lane Width, ft	9-12	
Surrounding Terrain: Mountainous, Rolling				
Facility Classification				
Present: 2-C & 2-E (PM R63.7 - PM 67.9)	Concept: 2-C, 2-E	Post-25 Year: 2-C, 2-E		
Level of Service				
Present: B	Concept: C	Class III Highway		
Segment Description				
This segment begins at the west boundary of Death Valley National Park (PM 42.70) and ends at the east intersection with Borax Mill Road (PM 109.07). It traverses mountainous and rolling desert terrain. The majority of the facility is a two-lane conventional highway classified as a Minor Arterial with posted speed limits ranging from 35 mph in the area of Stovepipe Wells to 65 mph outside the area. It is undivided and does not have access control for most of the segment. In the Panamint Range from PM R63.70 - PM R67.96, the freeway agreement classifies the facility as an expressway with access control; however, typical users may not notice any differences between this 4.26 mile section when compared to the preceding or following conventional highway sections. SR 190 is officially designated a state scenic highway and a national scenic byway within the boundaries of DVNP. Steep grades, sharp curves, dips, and rockfall are characteristic of this segment. Father Crowley Point (PM 47.42) provides vistas of the Panamint Valley and is a popular stop. Stovepipe Wells (PM 86.00) includes amenities such as lodging, camping, a restaurant, gas station, general store, and ranger station.				
Highway Network Affiliation				
Functional Classification: Minor Arterial			CA Freeway and Expressway System: Yes	
National Truck Network: CA Legal Advisory Route/Network			Interregional Road System (IRRS): Yes	
Strategic Highway Corridor Network: No			National Highway System: No	
Scenic Highway: Officially designated State Scenic Highway and National Scenic Byway			Regionally Significant: Yes	
			Life Line: No	
Traffic Flow, Present and Projected				Maintenance Program
Year	Average Annual Daily Traffic	Design Hourly Volume	Level of Service	Maintenance Service Level: Class 3
2010	840	185	B	Maintenance Station: Death Valley - Highway Maintenance Station Cow Creek Road, PM 107.39 Death Valley, CA 92328
2020	980	240	B	
2030	1,260	300	B	
Right-of-Way				Use Patterns
Rights	R/W held by easement, including RS 2477, and fee title.	Peak Hour Directional Traffic Split		51/49
		10-Year Traffic Growth %		2.5
Width	100 - 500 ft	Trucks/Total Vehicles %		10.2

STATE ROUTE 190 - SEGMENT FACT SHEET

Traffic Analysis

This segment of SR 190 is both a conventional highway and expressway primarily used by local, interregional, interstate, and recreational traffic. From the SR 190/SR 136 junction (PM 24.55) in Segment 2 to Panamint Valley Road (PM 57.91), trucks with a kingpin-to-rear-axle distance over 30 ft are advised not to travel; buses and motorhomes over 40 ft in length are prohibited. In order to experience and photograph the many views in DVNP, drivers often stop in the roadway or utilize the wide unpaved shoulders at random locations for parking. The highway bisects the services at Stovepipe Wells and at peak times during the year a high volume of pedestrian traffic crossing the highway may occur. Within this segment, flooding causes ongoing issues for Caltrans Maintenance. SR 190 is often closed during storm events at several locations.

Route Concept Improvement Recommendations

Increase paved shoulder width to 4 ft standard; additionally, increase unpaved shoulder width to 3 ft. Shoulder widening is especially needed for the purposes of operations and metal beam guardrail support (PM 42.00 - PM 55.00 approximately). Improve clear recovery zone as needed. Raise the highway grade and install culverts to reduce flooding and debris washing onto the roadway (PM 54.60). Address rockfall shed onto the highway from adjacent slopes (PM 64.30 - PM 65.30). Realign horizontal and vertical curves and reduce potential for rockfall (PM 69.20 - PM 69.80). Improve drainage at locations frequently impacted by flooding (approximately PM 74.00 - 75.00, PM 79.00, and PM 85.80).

Land Use

Usage: Recreational and resource management.

Land managers/owners: National Park Service, Bureau of Land Management, State Lands Commission, and private parcels.

Environmental

Endangered / Threatened Species: Listed in the California Natural Diversity Database (CNDDDB) 2012, None

Air Quality

Air Basin: Great Basin Valleys

State of California Ambient Air Quality Standard:

Ozone: Nonattainment

PM-10: Nonattainment

National Ambient Air Quality Standard:

8-Hour Ozone: Unclassified / Attainment

PM-10: Nonattainment / Unclassified

Transit Service, Modal Options, & Complete Streets

Transit Service: Private companies offer tours and transportation along SR 190.

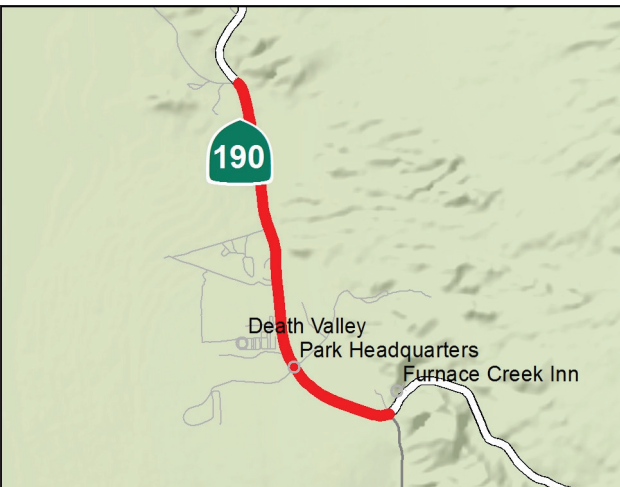
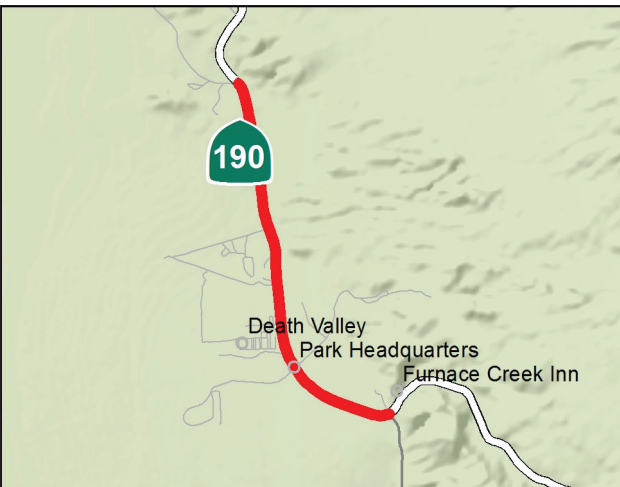
Modal: Pedestrians, bicycles, and motor-driven cycles are allowed. Stovepipe Wells has a public use airport.

Complete Streets: Paved, widened shoulders should be continuous to better accommodate bicyclists and pedestrians. Sidewalks do not exist.

Programmed Projects

None.

STATE ROUTE 190 - SEGMENT FACT SHEET

SEGMENT 4 of 6		Through Lanes	2						
Length, miles	2.7	Shoulder Width, ft	1-7						
Beginning PM	109.07	Median Width, ft	0						
Ending PM	111.73	Lane Width, ft	12						
Surrounding Terrain: Rolling									
Facility Classification									
Present:	2-C	Concept:	2-C	Post-25 Year:	2-C				
Level of Service		Present:	B	Concept:	C				
		Class III Highway							
Segment Description									
This segment begins at the east intersection with Borax Mill Road (PM 109.07) and ends at Badwater Road (PM 111.73). It traverses rolling desert terrain. The facility is a two-lane conventional highway classified as a Minor Arterial with posted speed limits ranging from 35 mph in the area of Furnace Creek to 60 mph outside the area. It is undivided and does not have access control. SR 190 is officially designated a state scenic highway and a national scenic byway within the boundaries of DVNP. Badwater Road (PM 111.73) provides access to Badwater Basin. With a minimum land elevation of 282 ft below sea level, Badwater Basin is the lowest point in Death Valley and the lowest elevation in North America. Furnace Creek (PM 110.19) includes amenities such as restaurants, general store, lodging, museum, and DVNP’s visitor center and headquarters. The Timbisha Shoshone Tribe anticipates future development of its land at Furnace Creek will include a museum, inn, residential units, and community development center.									
Highway Network Affiliation									
Functional Classification: Minor Arterial			CA Freeway and Expressway System: Yes						
National Truck Network: California Legal Network			Interregional Road System (IRRS): Yes						
Strategic Highway Corridor Network: No			National Highway System: No						
Scenic Highway: Officially designated State Scenic Highway and National Scenic Byway			Regionally Significant: Yes						
			Life Line: No						
Traffic Flow, Present and Projected				Maintenance Program					
Year	Average Annual Daily Traffic	Design Hourly Volume	Level of Service	Maintenance Service Level: Class 3					
2010	1,120	305	B	Maintenance Station: Death Valley - Highway Maintenance Station Cow Creek Road, PM 107.39 Death Valley, CA 92328					
2020	1,320	370	C						
2030	1,600	455	C						
Right-of-Way				Use Patterns					
Rights	R/W held by easement, prescriptive right, and fee title.		Peak Hour Directional Traffic Split		55/45				
			10-Year Traffic Growth %		2.0				
Width	100 ft		Trucks/Total Vehicles %		3.9				

STATE ROUTE 190 - SEGMENT FACT SHEET

Traffic Analysis

This segment of SR 190 is a conventional highway primarily used by local, interregional, interstate, and recreational traffic.

Route Concept Improvement Recommendations

Increase paved shoulder width to 4 ft standard; additionally, increase unpaved shoulder width to 3 ft. Improve clear recovery zone as needed. Continue to monitor drainage issues.

Land Use

Usage: Recreational and resource management.

Land managers/owners: National Park Service, Bureau of Land Management, private parcels, and the Timbisha Shoshone Tribe (underlying fee owner, 317 ft along the roadway centerline and west side of the highway near Indian Village Road, PM 110.99),

Environmental

Endangered / Threatened Species: Listed in the California Natural Diversity Database (CNDDDB) 2012, None

Air Quality

Air Basin: Great Basin Valleys

State of California Ambient Air Quality Standard:

Ozone: Nonattainment

PM-10: Nonattainment

National Ambient Air Quality Standard:

8-Hour Ozone: Unclassified / Attainment

PM-10: Nonattainment / Unclassified

Transit Service, Modal Options, & Complete Streets

Transit Service: Private companies offer tours and transportation along SR 190.

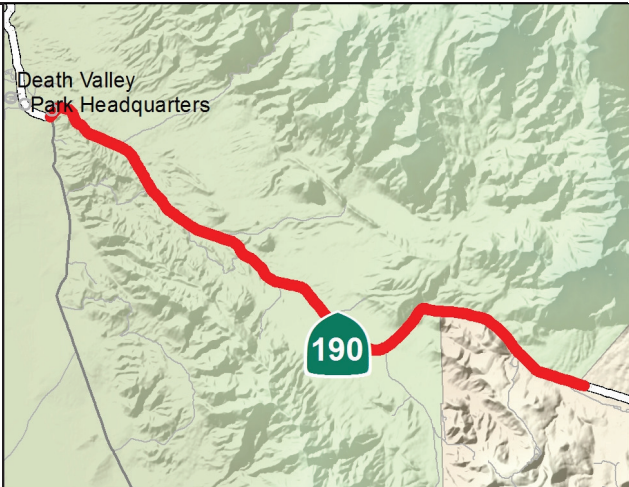
Modal: Pedestrians, bicycles, and motor-driven cycles are allowed. Furnace Creek has a public use airport.

Complete Streets: Paved, widened shoulders should be continuous to better accommodate bicyclists and pedestrians. Sidewalks do not exist. There is a Class I bike path from Borax Mill Road to the DVNP visitor center.

Programmed Projects

None.

STATE ROUTE 190 - SEGMENT FACT SHEET

SEGMENT 5 of 6		Through Lanes	2	
Length, miles	16.6	Shoulder Width, ft	0-4	
Beginning PM	111.73	Median Width, ft	0	
Ending PM	128.33	Lane Width, ft	12	
Surrounding Terrain: Rolling				
Facility Classification				
Present:	2-C	Concept:	2-C	
Post-25 Year: 2-C				
Level of Service				
Present:	B	Concept:	C	
Class III Highway				
Segment Description				
This segment begins at Badwater Road (PM 111.73) and ends at the east boundary of Death Valley National Park (PM 128.33). It traverses rolling desert terrain. The facility is a two-lane conventional highway classified as a Minor Arterial with posted speed limits ranging from 45 mph to 65 mph. It is undivided and does not have access control. SR 190 is officially designated a state scenic highway and a national scenic byway within the boundaries of DVNP. Roadway dips are characteristic of this segment. Zabriskie Point and Dante’s View, two popular tourist attractions, are accessible.				
Highway Network Affiliation				
Functional Classification: Minor Arterial			CA Freeway and Expressway System: Yes	
National Truck Network: California Legal Network			Interregional Road System (IRRS): Yes	
Strategic Highway Corridor Network: No			National Highway System: No	
Scenic Highway: Officially designated State Scenic Highway and National Scenic Byway			Regionally Significant: Yes	
			Life Line: No	
Traffic Flow, Present and Projected				Maintenance Program
Year	Average Annual Daily Traffic	Design Hourly Volume	Level of Service	Maintenance Service Level: Class 3
2010	1,000	170	B	Maintenance Station: Death Valley - Highway Maintenance Station Cow Creek Road, PM 107.39 Death Valley, CA 92328
2020	1,160	200	B	
2030	1,350	230	B	
Right-of-Way				Use Patterns
Rights	R/W held by easement, prescriptive right, and fee title.	Peak Hour Directional Traffic Split		55/45
		10-Year Traffic Growth %		1.5
Width	40 - 400 ft	Trucks/Total Vehicles %		3.9

STATE ROUTE 190 - SEGMENT FACT SHEET

Traffic Analysis

This segment of SR 190 is a conventional highway primarily used by local, interregional, interstate, and recreational traffic. Within this segment, flooding causes ongoing issues for Caltrans Maintenance. SR 190 is often closed during storm events at several locations.

Route Concept Improvement Recommendations

Increase paved shoulder width to 4 ft standard; additionally, increase unpaved shoulder width to 3 ft. Improve clear recovery zone as needed. Review at-grade water crossing conditions and improve as needed (approximately PM 115.00, PM 116.50, and PM 122.00).

Land Use

Usage: Recreational and resource management.

Land managers/owners: National Park Service, Bureau of Land Management, and private parcels.

Environmental

Endangered / Threatened Species: Listed in the California Natural Diversity Database (CNDDB) 2012, None

Travertine Springs: The NPS is currently researching restoration and management of spring systems at Furnace Creek. The project's goals include returning surface flow that has been captured and piped for municipal use from Travertine Springs for several decades, and restoring the spring systems' historical biological condition. The flow from one of the springs crosses SR 190

Air Quality

Air Basin: Great Basin Valleys

State of California Ambient Air Quality Standard:

Ozone: Nonattainment

PM-10: Nonattainment

National Ambient Air Quality Standard:

8-Hour Ozone: Unclassified / Attainment

PM-10: Nonattainment / Unclassified

Transit Service, Modal Options, & Complete Streets

Transit Service: Private companies offer tours and transportation along SR 190.

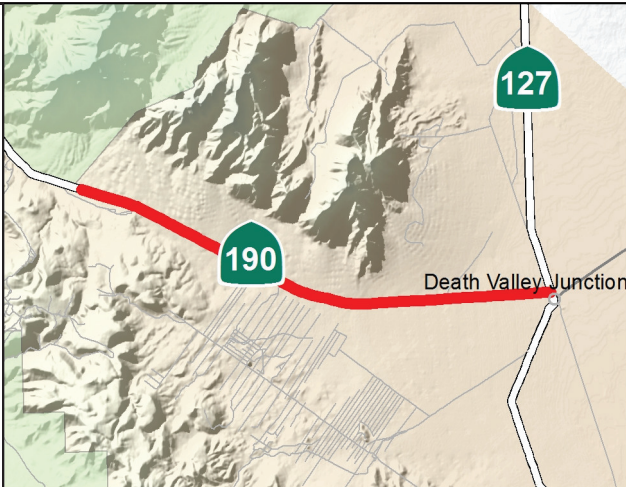
Modal: Pedestrians, bicycles, and motor-driven cycles are allowed.

Complete Streets: Paved, widened shoulders should be continuous to better accommodate bicyclists and pedestrians. Sidewalks do not exist.

Programmed Projects

None.

STATE ROUTE 190 - SEGMENT FACT SHEET

SEGMENT 6 of 6		Through Lanes	2		
Length, miles	12.4	Shoulder Width, ft	2		
Beginning PM	128.33	Median Width, ft	0		
Ending PM	140.69	Lane Width, ft	12		
Surrounding Terrain:		Rolling			
Facility Classification					
Present:	2-C	Concept:	2-C		Post-25 Year:
Level of Service					
Present:	A	Concept:	C	Class II Highway	
Segment Description					
This segment begins at the east boundary of Death Valley National Park (PM 128.33) and ends with the route terminus at the SR 127 junction (PM 140.69), adjacent to Death Valley Junction. It traverses rolling desert terrain. The facility is a two-lane conventional highway classified as a Minor Arterial with a posted speed limit of 65 mph. It is undivided and does not have access control. Roadway dips are characteristic of this segment. The Timbisha Shoshone Tribe anticipates future development of its land at Death Valley Junction will include visitor/travel services and residential units.					
Highway Network Affiliation					
Functional Classification: Minor Arterial			CA Freeway and Expressway System: Yes		
National Truck Network: California Legal Network			Interregional Road System (IRRS): Yes		
Strategic Highway Corridor Network: No			National Highway System: No		
Scenic Highway: Eligible for designation			Regionally Significant: Yes		
			Life Line: No		
Traffic Flow, Present and Projected				Maintenance Program	
Year	Average Annual Daily Traffic	Design Hourly Volume	Level of Service	Maintenance Service Level: Class 3	
2010	850	150	A	Maintenance Station:	
2020	990	175	B	Death Valley - Highway Maintenance Station	
2030	1,150	200	B	Cow Creek Road, PM 107.39	
				Death Valley, CA 92328	
Right-of-Way				Use Patterns	
Rights	R/W held by easement and prescriptive right.	Peak Hour Directional Traffic Split		70/30	
		10-Year Traffic Growth %		1.5	
Width	100 - 400 ft	Trucks/Total Vehicles %		7.2	

STATE ROUTE 190 - SEGMENT FACT SHEET

Traffic Analysis

This segment of SR 190 is a conventional highway primarily used by local, interregional, interstate, and recreational traffic.

Route Concept Improvement Recommendations

Increase paved shoulder width to 4 ft standard and install shoulder rumble strip; additionally, increase unpaved shoulder width to 3 ft. Improve clear recovery zone as needed.

Land Use

Usage: Recreational and resource management.

Land managers/owners: Bureau of Land Management, State Lands Commission, private parcels, and the Timbisha Shoshone Tribe (underlying fee owner from PM 139.00 - PM 140.69 approximately).

Environmental

Endangered / Threatened Species: Listed in the California Natural Diversity Database (CNDDDB) 2012, None

Air Quality

Air Basin: Great Basin Valleys

State of California Ambient Air Quality Standard:

Ozone: Nonattainment

PM-10: Nonattainment

National Ambient Air Quality Standard:

8-Hour Ozone: Unclassified / Attainment

PM-10: Nonattainment / Unclassified

Transit Service, Modal Options, & Complete Streets

Transit Service: Private companies offer tours and transportation along SR 190.

Modal: Pedestrians, bicycles, and motor-driven cycles are allowed.

Complete Streets: Paved, widened shoulders should be continuous to better accommodate bicyclists and pedestrians. Sidewalks do not exist.

Programmed Projects

None.

ACRONYMS

2-C	Two-Lane Conventional Highway
2-E	Two-Lane Expressway
AADT	Annual Average Daily Traffic
BLM	Bureau of Land Management
Caltrans	California Department of Transportation
CHP	California Highway Patrol
CNDDB	California Natural Diversity Database
DVNP	Death Valley National Park
ESTA	Eastern Sierra Transit Authority
FHWA	Federal Highway Administration
HCM	Highway Capacity Manual
INY	Inyo County
IRRS	Interregional Road System
KPRA	Kingpin-to-Rear-Axle
LOS	Level of Service
MSL	Maintenance Service Level
N/A	Not Applicable
NAAQS	National Ambient Air Quality Standards
NHS	National Highway System
NPS	National Park Service
NTN	National Truck Network
PM	Post Mile
R/W	Right-of-Way
SR	State Route
STAA	Surface Transportation Assistance Act of 1982
STRAHNET	Strategic Highway Network
TCR	Transportation Concept Report
US 395	United States Highway 395

GLOSSARY

Annual Average Daily Traffic - AADT

The average 24-hour volume of traffic that is calculated over a year.

Concept Facility

Highway facility type and characteristics considered viable with or without improvement within the 20-year planning period given financial, environmental, planning, and engineering factors.

Concept LOS

Highest and best Level of Service that can be achieved in the 20-year planning period based on the concept facility.

Conventional Highway

A highway generally without controlled access. Grade separations at intersections or access control may be used at spot locations when justified.

Design Hour Volume - DHV

The 30th highest hour traffic volume in a selected year for a given segment.

Expressway

An arterial highway with partial access control. May or may not be divided or have grade separations at intersections.

Functional Classification

Guided by Federal legislation, refers to a process by which streets and highways are grouped into classes or systems according to the character of the service that is provided, i.e. Principal and Minor Arterial Roads, Collector Roads, and Local Roads.

Interregional Road System - IRRS

Statewide network of legislatively identified interregional routes, outside urbanized areas, that provide access to, and links between, the state's rural and urban regions, economic centers, and major recreational areas.

Level of Service - LOS

A qualitative rating of the effectiveness of a transportation system in serving travel, A (best) through F (worst).

National Highway System - NHS

Federally-designated system of major highways in each state, including all interstate highways.

Programmed Projects

Capacity-enhancing, safety, and/or operational improvement projects programmed through STIP or SHOPP.

System/Network Affiliation

Identifies whether or not the subject segment of a route is designated as being part of the National Highway System, Interregional Highway System, California Freeway and Expressway System, Scenic Highway System, National Truck Network, Strategic Highway Network, and/or other highway systems or networks of regional significance.

Surface Transportation Assistance Act of 1982 - STAA

The FHWA provides standards for STAA trucks. These standards designate the maximum truck size that all states must allow on highways in the National Truck Network.

REFERENCES & INFORMATION

Bureau of Land Management, Ridgecrest, CA <www.blm.gov/ca/st/en/fo/ridgecrest.html>
California Environmental Protection Agency Air Resources Board <www.arb.ca.gov> 2011
Central Region On-line Project Information System, Caltrans, 2012
Digital Highway Inventory Photography Program, Caltrans HQ Project Delivery, 2002
“Draft DVNP Travertine Springs Restoration Impact/Mitigation to SR 190 Study,” Truman Denio, Caltrans, December 2012
Eastern Sierra Transit Authority <<http://easternsierratransitauthority.com>> 2011
Federal Highway Administration <www.fhwa.dot.gov> 2011
Great Basin Unified Air Pollution Control District <www.gbuapcd.org> 2010
157 Short Street, Bishop, CA, 93514
Highway Capacity Manual, 2010
Inyo County General Plan <www.inyoplanning.org> 2001
Inyo County Local Transportation Commission <www.inyoltc.org>
Inyo County Regional Transportation Plan, April 22, 2009
Long-Term Socio-Economic Forecasts, Caltrans <www.dot.ca.gov/hp/tpp/offices/ote/> 2010
National Park Service, Death Valley <www.nps.gov/deva/index.htm>
Photolog, Caltrans District 9, 2009
Post Mile Log, Caltrans District 9, 2007
State Route 190 Transportation Concept Report, Caltrans District 6, February 2007
State Route 190 Transportation Concept Report, Caltrans District 9, May 2003
Table B Collision Data, SR 190, 2008–2010
Timbisha Shoshone Homeland Act, January 24, 2000
Timbisha Shoshone Tribe <www.timbisha.com>
Traffic Data Branch, Caltrans, <www.dot.ca.gov/hq/traffops/saferesr/trafdata/index.htm> 2010 AADT
Wikipedia <www.wikipedia.org>